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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARCO PACCHIONE and
DOMENICO FURFARI

Appeal 2016-000396
Application 13/486,444
Technology Center 1700

Before DONNA M. PRAISS, WESLEY B. DERRICK, and
JULIA HEANEY, *Administrative Patent Judges*.

PRAISS, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from the Final Rejection of claims 12, 13, 15, and 17 under 35 U.S.C. § 103(a). App. Br. 4; Ans. 2. We have jurisdiction under 35 U.S.C. § 6(b).

The subject matter of this appeal relates to connecting a fiber composite component to a structural component of an aircraft and spacecraft. Spec. 1:13–15. In particular, a metal foil inserted in a

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[1] This decision makes reference to the Specification (filed June 1, 2012) ("Spec."), the Final Office Action (mailed May 22, 2014) ("Final Act."), the Appeal Brief (filed Jan. 26, 2015) ("App. Br."), the Examiner's Answer (mailed July 31, 2015) ("Ans."), and the Reply Brief (filed Sept. 30, 2015) ("Reply Br.").

connection portion of the fiber composite component and the structural component has at least one anchoring portion which protrudes from the surface of the metal foil. Spec. 4:22–27. Claim 12 is illustrative and reproduced from the Claims Appendix (paragraphing added and disputed elements italicized):

> 12. An arrangement comprising a fibre composite component and a structural component of an aircraft and spacecraft, in which a metal foil is inserted in a connection portion of the fibre composite component and structural component as a transverse reinforcement element, wherein the metal foil comprises
>
> at least one anchoring portion which protrudes from a surface of the metal foil, the at least one anchoring portion being in the form of a surface element having *a tapered or cylindrical shape*,
>
> *wherein the at least one anchoring portion having a tapered shape is punch-bent from the metal foil* and comprises anchoring elements which are disposed substantially perpendicularly or at a predetermined angle with respect to the respective surface of the metal foil, and
>
> *wherein the at least one anchoring portion having a cylindrical shape comprises anchoring pins which are welded to the metal foil.*

App. Br. 11 (Claims Appendix).

The Examiner maintains, and Appellants[2] appeal, the rejection of claims 12, 13, 15, and 17 under 35 U.S.C. § 103(a) as unpatentable over

[2] Appellants identify the real party in interest as Airbus Operations GmbH. App. Br. 1.

Kirkwood[3] in view of Matsui[4] and Giannuzzi.[5] Ans. 2; App. Br. 4. Appellants argue the subject matter of independent claim 12, and rely on those same arguments for claims 13, 15, and 17. App. Br. 3–8. In accordance with 37 C.F.R. § 41.37(c)(1)(iv), claims 13, 15, and 17 will stand or fall together with claim 12 on which they depend either directly or indirectly.

OPINION

The dispositive issue for this appeal is whether the Examiner erred in finding that the shape of the anchoring portion required by claim 12 is suggested by Kirkwood's disclosure of a metal foil susceptor having a pattern of openings cut therein and barbs formed in the Z-axis by folding prongs out of the X-Y plane, in view of the anchor shapes disclosed by Matsui and Giannuzzi and also Kirkwood's disclosure of tailoring, salvaging, structurally modifying, and reinforcing the susceptor.

After review of the arguments and evidence presented by both Appellants and the Examiner, we affirm the stated rejection.

The Examiner determines that Kirkwood in view of Matsui and Giannuzzi suggests the subject matter of claims 12, 13, 15, and 17 for the reasons stated on pages 2–11 of the Answer.[6]

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[3] Kirkwood et al., WO 96/40487 A1 (published Dec. 19, 1996) ("Kirkwood").
[4] Matsui et al., US 5,121,537 (issued June 16, 1992) ("Matsui").
[5] Giannuzzi et al., US 5,575,600 (issued Nov. 19, 1996) ("Giannuzzi").
[6] The Final Office Action was modified by the Advisory Action dated July 31, 2014, following the amendments after final cancelling claims 14 and 16 and amending claim 12. Ans. 2; App. Br. 3. In the Answer, the Examiner does not maintain the written description and indefiniteness rejections under 35 U.S.C. § 112 of the Final Office Action (Final Act. 2–3). Additionally, the term "first direction" quoted in the Final Office Action (Final Act. 3)

In the Appeal Brief, Appellants argue that Kirkwood "fails to disclose the at least one anchoring portion being in the form of a surface element having a tapered or cylindrical shape, as recited in claim 12." App. Br. 5. Appellants further argue that neither Matsui nor Giannuzzi cure this deficiency of Kirkwood because (1) Matsui requires corresponding anchor grooves in order for the protruding ribs to function as contemplated by Matsui and (2) Giannuzzi neither discloses nor suggests that the anchor can be made in both tapered and cylindrical shape. *Id.* at 5–6. Appellants further contend that "punch bending and/or welding are not conventional methods with regard to the present subject matter." *Id.* at 6. In addition, Appellants argue that even if "these methods were considered conventional in metal working," the combination of references would not lead a person having ordinary skill in the art to the "solution presented in claim 12" because "punch-bending and/or welding has no useful application when considered in the context of Kirkwood (i.e., providing a plurality of spaced barbs extending into the Z-plane)." *Id.* at 6–7.

The Examiner responds that the only difference between claim 12 and Kirkwood is the tapered shape or the cylindrical shape of the anchoring portion, but "the Kirkwood reference does not restrict the anchoring shape on the metal foil." Ans. 6. The Examiner finds that Kirkwood evidences the opposite, i.e., multiple shapes for the anchor, because it "encourages or suggests that the anchor portion maybe tailored, salvaged (or in another word, edge treatment), structurally modified or reinforced particularly to increase the bonding strength (see e.g. line 15-20 in page 13)." *Id.* The

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does not appear in currently pending claim 12. Therefore, we understand the Section 112 rejections to be withdrawn and not before us on appeal.

Examiner further finds that "because Kirkwood is already suggesting an anchor portion maybe tailored, salvaged . . . modifying it with the shapes in either Matsui and/or Giannuzzi would be within the purview of one of ordinary skill in the art." *Id.* at 7, 9. The Examiner additionally finds that Kirkwood's disclosure of folding prongs out of the xy plane "is the same or an obvious variant of the punch bent method that is claimed in the instant application." *Id.* at 8, 10 (citing Kirkwood 13:15–30, Fig. 5) (emphasis omitted). The Examiner also finds that

> [a]lthough Kirkwood did not use [a] welding method to weld the anchoring portion to the metal foil, Kirkwood uses welding methods throughout the specification . . . , thus it would also have been obvious for a person with ordinary skills in the art to use [a] welding method to weld the anchoring pin to the metal foil because it is a well-established method for metal working.

Id. at 8, 10 (citing Kirkwood 1, 2, 5). In response to Appellants' argument that punch-bending and welding distinguish claim 12 over the cited art, the Examiner states that Appellants "failed to distinctively point out why and how this process distinguishes the instant application from the prior art structure." *Id.* at 7, 10.

In the Reply Brief, Appellants contend that "punch-bending and/or welding limits the claimed subject matter of independent claim 12 insofar as not all forms and shapes of protrusions in a metal foil may be obtained by punch bending and/or welding." Reply Br. 3. Appellants further assert that "punch-bending would not be used to produce the anchoring portions, and overall structure, of Matsui." *Id.* Appellants assert that "the anchors or ribs **6** of Matsui are only formed in conjunction with an inextricable metal-metal link, such that they cannot be obtained by punch-bending and cannot be separated from an underlying steel base plate **1**." *Id.* at 4. Similarly,

Appellants argue that "welding would not be used to produce anchoring portions, and overall structure, of Giannuzzi, which in no way comprises a tapered or cylindrical shape within the meaning of independent claim 12." *Id.* at 5. According to Appellants, "the anchors **A** of Giannuzzi are formed to receive nails **N**, such that anchors **A** cannot be obtained by punch-bending or welding." *Id.*

For the reasons discussed below, Appellants' arguments fail to identify a reversible error in the Examiner's findings as to claim 12. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011).

First, it is undisputed that Kirkwood teaches the anchor portion of the metal foil may be tailored, salvaged, structurally modified or reinforced particularly to increase the bonding strength. Ans. 6; Kirkwood 13:15–20. It is also undisputed that Kirkwood's disclosure of folding prongs out of the xy plane "is the same or an obvious variant of the **punch bent** method that is claimed in the instant application." Ans. 8, 10; Kirkwood 13:15–30, Fig. 5. Although Appellants assert that "punch-bending . . . has no useful application when considered in the context of Kirkwood (i.e., providing a plurality of spaced barbs extending into the Z-plane)" (App. Br. 7), their argument is devoid of any meaningful explanation on why Kirkwood's folding prongs out of the xy plane does not disclose or suggest "punch-bent" as recited in claim 12. Appellants' argument also lacks any meaningful explanation as to how and why the recited "punch-bent" process renders a structure different from the structure of Kirkland. *See* Ans. 7.

Second, Appellants do not direct us to any evidence that would rebut the Examiner's finding that one of ordinary skill in the art would have modified the shape of Kirkwood's anchor portion in order to tailor it for

specific requirements in view of the tapered shape taught in Matsui for anchor bonding of separate materials to form a single unitary structure. Ans. 4. Appellants' arguments that the tapered ribs of Matsui "require the corresponding anchor grooves **3** in order for the ribs **6** to function as contemplated by **Matsui**" (App. Br. 6) are not persuasive because "[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). The Examiner's rejection is over the disclosure of Kirkwood in view of the tapered shape disclosed in Matsui, which is cited not for Matsui's anchoring system, but to support the Examiner's finding that an anchor can have a tapered shape (Ans. 6) and that a tapered shape would have been "within the purview of one of ordinary skill in the art" (*id.* at 7). Appellants' argument lacks any meaningful explanation as to why it would not have been within the purview of one of ordinary skill in the art to modify Kirkwood's rectangular tabs or prongs depicted in Figure 5 (item 25) in view of Kirkwood's teaching to tailor and structurally modify the metal foil. *See* Kirkwood 13:15–20, Figs. 3–5 (item 250); Ans. 6–7. Moreover, Kirkwood suggests a tapered shape is imparted to its prongs that are folded in the Z-axis. Kirkwood describes barbs being formed out of the prongs "by scoring the prong with a cut that starts relatively closer to the body of the susceptor and extends into the prong at an angle running from the surface toward the tip." Kirkwood 13:28–30. Appellants do not dispute that Kirkwood forms "barbs **250** in the Z-axis by folding prongs out of the X-Y plane" (App. Br. 5). Such an angled cut to form a barb suggests that

Kirkland's prong includes a tapered portion as a result. In any event, Appellants do not adequately explain why a tapered shape for Kirkland's prongs would not have been obvious to a skilled artisan in view of the disclosures of both Kirkwood and Matsui.

Because claim 12 requires that the "at least one anchoring portion being in the form of a surface element having a tapered OR cylindrical shape," and we find that Appellants have not identified a reversible error in the Examiner's rejection over Kirkwood in view of the tapered anchor of Mitsui, we need not address the additional findings and arguments concerning the optional cylindrical shape claim limitation.

For the foregoing reasons, we affirm the Examiner's rejection under 35 U.S.C. § 103(a) of claims 12, 13, 15, and 17.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED